

Remarks/Arguments

This paper is submitted responsive to the Office Action mailed January 5, 2009. Reconsideration of the application in light of the accompanying remarks is respectfully requested.

The present office action contains two rejections, one based on WO '522 and the newly cited patent to Xue, and the other based on a combination of Nazmy, DE '443 and the newly cited patent to Xue. The bases for the two rejections, that is, WO '522 and Nasmy/DE '443, were present in the last office action and combined with a patent to Allen which was said to teach the claimed bonding. Responsive to the arguments and amendments on this point as filed in response to that office action, the Examiner has withdrawn reliance on the Allen patent and now relies on Xue to teach this bonding. Reconsideration of this rejection is respectfully requested.

The teachings of Xue relate to all ceramic SOFC (see for example columns 1 and 2) with relatively well matched materials in terms of thermal expansion coefficients. More particularly, the teachings of Xue relate to the bonding of anode/anode and anode/interconnect pairs, in which the anode part is a ceramic material, i.e., nickel oxide and zirconia in the fabrication (prior to reduction which turns nickel oxide to nickel in an operating SOFC) and the interconnect is also a ceramic material, i.e., strontium-doped lanthanum chromite as cited in column 1, lines 20-21, and column 7, lines 9-13. In contrast, the pending application teaches bonding of the cathode electrode to a metallic interconnect and an anode electrode to a metallic interconnect.

The teachings of Xue relate to the bonding of ceramic to ceramic and this does not carry over to the bonding of a ceramic electrode to metallic interconnect as is the case in the pending application, i.e., the pairs of materials are different and it is well known in the art that bonding of a ceramic to a metal is a very challenging undertaking and requires materials that can "couple and react" with the outermost atoms of the metal surface.

The teachings of Xue relate to ceramics which are known to have a rigid structure that is not compliant (i.e., ceramics fracture instead of plastically deforming under stress). In contrast, the interconnect of the pending application is based on metals, i.e., nickel-based alloys, which are formed into compliant structures. As a result, the teachings of Xue are not relevant to the teachings of the pending application and would not be consulted by a person skilled in the art attempting to modify the teachings of either WO '522 or Nazmy/DE '443.

Claims 1 and 49 each require an SOFC structure and permanent bonds, and it is believed that these claims define over all art of record.

Based upon the foregoing, it is submitted that claims 1 and 49 are in condition for allowance.

Dependent claim 56 is further believed to be in condition for allowance based upon the additional structure recited in connection with the interconnect. Nothing in the art of record is believed to disclose or suggest this structure. Dependent claim 58 is supported by the same reasoning as dependent claim 56. Thus, both of these claims are believed to be allowable due to their dependency

from claims 1 and 49 respectively, and also in their own right.

Finally, claims 61 and 62 recite the structure of the interconnect from the standpoint of the spaced contact zones, and this claim language defines over the flat mesh structure of WO '522. Thus, dependent claims 61 and 62 are also submitted to be allowable based upon dependency from claims 1 and 49, and also in their own right.

It is believed that no fee is due in connection with this paper. If, however, any such fee is due, please charge same to Deposit Account 02-0184.

Respectfully submitted,

By /george a. coury/

George A. Coury
Reg. No. 34,309
Attorney for the Applicant
Tel 203-777-6628, x113
Fax 203-865-0297
E-mail: docket@bachlap.com

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